

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-23 are presently active in this case, Claims 1, 3, 4, 6-8, 10, 21, and 22 having been amended and Claim 23 having been added by way of the present Amendment.

Claims 6-8 and 16-18 were indicated as being allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claim 6 has been rewritten in independent form including all of the limitations of Claims 1, 2, and 5. Claim 16 has been rewritten in independent form including all of the limitations of Claims 10, 11, and 15. New Claim 23 includes all of the limitations of Claims 10, 14, 15, and 16. Accordingly, the Applicants submit that Claims 6-8, 16-18, and 23 are in condition for allowance.

In the outstanding Official Action, Claims 1-4, 9-14, and 19-20 were rejected under 35 U.S.C. 102(e) as being anticipated by Purcell et al. (U.S. Patent No. 6,227,643). Claims 5 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Purcell et al. For the reasons discussed below, the Applicants request the withdrawal of the art rejections.

Claim 1 of the present application recites a method of determining whether a storage unit included in an ink cartridge is normal, which includes a step of identifying whether a read-out piece of decision information satisfies a predetermined format, so as to determine whether the storage unit is normal or whether the storage unit is not normal if the read-out piece of decision information has been destroyed. Claim 10 recites a printer, to which an ink cartridge having a storage unit is detachably attached, in which the printer comprises a decision unit identifying whether the read-out piece of decision information satisfies the predetermined format, so as to determine whether the storage unit is normal or whether the

storage unit is not normal if the read-out piece of decision information has been destroyed.

Claim 21 recites a computer readable recording medium, on which a specific computer program is recorded, where the program comprises a program code that causes the computer to determine that the storage unit is not normal in the case where the read-out piece of decision information does not satisfy the predetermined format if the read-out piece of decision information has been destroyed. Claim 22 recites a method that includes the step of determining whether the storage unit is normal, based on the read-out piece of decision information, or whether the storage unit is not normal if the read-out piece of decision information has been destroyed.

The Purcell et al. reference describes an ink jet printer with intelligent components that include an ink jet cartridge and a roll of print media, each of which incorporate memory elements. The Purcell et al. reference describes a printer with intelligent cartridges, media, and environmental sensing that can be used to reduce the investment in training and experience required to produce high quality prints with an ink jet printer. The Purcell et al. reference mentions that the printer can prevent ink-media mismatch errors from being made, can prevent unacceptable cartridges or media from being used, and can prevent an operator from beginning a print job that will not be completed without depleting the ink or media installed in the printer. (See, column 10, lines 9-35, of the Purcell et al. reference.) The Purcell et al. reference does not describe any structure or method for determining whether the storage unit is normal or whether the storage unit is not normal if the read-out piece of decision information has been destroyed (see specific recitations in Claims 1, 10, 21, and 22 of the present application indicated in the previous paragraph).

The specification of the present invention describes a non-limiting embodiment of the present invention in which data from the storage unit is read to determine whether it has the

proper formatting. In the event that the storage data is destroyed, for example due to static electricity, then the data will not have the proper formatting, and therefore it can be determined that the storage unit is not normal. (See page 3, lines 10-26; page 4, lines 17-22; and page 31, line 12, through page 32, line 2.) The Purcell et al. reference is silent regarding any type of determination regarding the normality or abnormality of the storage unit.

Accordingly, the Applicant respectfully requests the withdrawal of the art rejections of Claims 1, 10, 21, and 22.

Claims 3-5, 9, 11-15 are considered allowable for the reasons advanced for Claims 1 and 10 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claims 1 and 10.

Claim 19 of the present application recites a storage unit included in an ink cartridge, wherein the ink cartridge is detachably attached to a printer. The storage unit comprises an address counter that outputs a count in response to a clock signal output from the printer, and a storage element that stores plural pieces of specific information including a piece of decision information registered in a predetermined format and that is sequentially accessed based on the count output from the address counter.

The Applicants submit that the Purcell et al. reference does not disclose a storage unit comprising an address counter that outputs a count in response to a clock signal, as expressly recited in Claim 19 of the present application. The Purcell et al. is silent regarding such a structure, and therefore does not anticipate Claim 19 of the present application.

Claim 20 is considered allowable for the reasons advanced for Claim 19 from which it depends. This claim is further considered allowable as it recites other features of the

invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 19.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully submitted,

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**IN THE CLAIMS**

1. (Twice Amended) A method of determining whether a storage unit included in an ink cartridge is normal, wherein the ink cartridge is configured to be detachably attached to a printer, the method comprising the steps of:

(a) reading a piece of decision information that has been registered in advance in a predetermined format, from the storage unit; and

(b) identifying whether the read-out piece of decision information satisfies the predetermined format, so as to determine whether the storage unit is normal or whether the storage unit is not normal if the read-out piece of decision information has been destroyed.

3. (Once Amended) A method in accordance with [any one of] claim 2, the method further comprising the step of:

(c) providing a display representing that the storage unit is not normal, when the step (b) determines that the storage unit is not normal.

4. (Once Amended) A method in accordance with [any one of] claim 2, the method further comprising the step of:

(d) discontinuing a printing operation of the printer, when the step (b) determined that the storage unit is not normal.

6. (Once Amended) A method [in accordance with claim 5] of determining whether a storage unit included in an ink cartridge is normal, wherein the ink cartridge is configured to be detachably attached to a printer, the method comprising the steps of:

(a) reading a piece of decision information that has been registered in advance in a predetermined format, from the storage unit; and

(b) identifying whether the read-out piece of decision information satisfies the predetermined format, so as to determine whether the storage unit is normal,

wherein the step (b) determines that the storage unit is not normal in the case where the read-out piece of decision information does not satisfy the predetermined format, wherein the step (b) uses a piece of information relating to a month of manufacture of the ink cartridge as the piece of decision information, wherein the piece of information relating to the month of manufacture of the ink cartridge is expressed by a data length of four bits, and the step (b) determines that the storage unit is not normal in the case where all the four bits have an identical digit, that is, either one of '0' and '1'.

7. (Once Amended) A method in accordance with [any one of] claim 6, the method further comprising the step of:

(c) providing a display representing that the storage unit is not normal, when the step (b) determines that the storage unit is not normal.

8. (Once Amended) A method in accordance with [any one of] claim 6, the method further comprising the step of:

(d) discontinuing a printing operation of the printer, when the step (b) determines that the storage unit is not normal.

10. (Once Amended) A printer, to which an ink cartridge having a storage unit is detachably attached, the printer comprising:

a reading unit reading a piece of decision information, wherein the piece of information has been registered in advance in a predetermined format, from the storage unit; and

a decision unit identifying whether the read-out piece of decision information satisfies the predetermined format, so as to determine whether [or not] the storage unit is normal or whether the storage unit is not normal if the read-out piece of decision information has been destroyed.

16. (Once Amended) A printer [in accordance with claim 15], to which an ink cartridge having a storage unit is detachably attached, the printer comprising:

a reading unit reading a piece of decision information, wherein the piece of information has been registered in advance in a predetermined format, from the storage unit; and

a decision unit identifying whether the read-out piece of decision information satisfies the predetermined format, so as to determine whether or not the storage unit is normal, wherein the decision unit determines that the storage unit is not normal in the case where the read-out piece of decision information does not satisfy the predetermined format, wherein the piece of decision information is a piece of information relating to a month of manufacture of the ink cartridge, wherein the piece of information relating to the month of manufacture of the ink cartridge is expressed by a data length of four bits, and the decision unit determines that the storage unit is not normal in the case where all the four bits have an identical digit, that is, either one of '0' and '1'.

21. (Once Amended) A computer readable recording medium, on which a specific computer program is recorded, the specific computer program being used to determine

whether a storage unit is normal, wherein the storage unit is included in an ink cartridge that is detachably attached to a printer, the specific computer program comprising:

    a program code that causes a computer to read a piece of decision information, wherein the piece of decision information has been registered in advance in a predetermined format, from the storage unit;

    a program code that causes the computer to identify whether the read-out piece of decision information satisfies the predetermined format; and

    a program code that causes the computer to determine that the storage unit is not normal in the case where the read-out piece of decision information does not satisfy the predetermined format if the read-out piece of decision information has been destroyed.

22. (Once Amended) A method of determining whether a readable and writable storage unit is normal, wherein the readable and writable storage unit is included in an ink cartridge that is detachably attached to a printer, the method comprising the steps of:

    reading a piece of decision information from the storage unit; and  
    determining whether the storage unit is normal, based on the read-out piece of decision information, or whether the storage unit is not normal if the read-out piece of decision information has been destroyed.

23. (New)